What is Claimed is:

1. A flow meter, comprising:

a base comprised of:

a first leg,

a tube opening extending through said first leg,

an adhesive opening extending from a surface on said first leg and intersecting said tube opening of said first leg,

a second leg parallel to said first leg,

a tube opening extending through said second leg coaxial to said tube opening of said first leg, and

an adhesive opening extending from a surface on said second leg and intersecting said tube opening of said second leg;

a flow tube made from a fluoropolymer substance extending through said tube opening of said first leg and through said tube opening of said second leg;

a driver affixed to said flow tube for vibrating said flow tube; and

at least one pick-off affixed to said flow tube for detecting motion of said vibrating flow tube.

2. The flow meter of claim 1 characterized in that said flow tube is made of perfluoroalkoxyethlene (PFA).

3. The flow meter of claim 2 characterized in that said base is made of stainless steel.

4. The flow meter of claim 1 characterized in that said flow meter comprises a Coriolis flow meter.

5. A method of affixing said flow tube to said first leg and said second leg of said flow meter of claim 1, the method comprising:

orienting said tube opening of said first leg, said adhesive opening of said first leg, and said flow tube on a horizontal plane;

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positioning a tip of an adhesive applicator in said adhesive opening of said first leg to access a gap between an outer surface of said flow tube and an inner surface of said tube opening of said first leg;

introducing an amount of adhesive in said gap between said outer surface of said flow tube and said inner surface of said tube opening of said first leg;

orienting said tube opening of said second leg, said adhesive opening of said second leg, and said flow tube on said horizontal plane;

positioning said tip of said adhesive applicator in said adhesive opening of said second leg to access a gap between said outer surface of said flow tube and an inner surface of said tube opening of said second leg; and

introducing said amount of adhesive in said gap between said outer surface of said flow tube and said inner surface of said tube opening of said second leg.

6. The method of claim 5 characterized in that said adhesive comprises a cyanoacrylate adhesive.

7. The method of claim 5 further comprising:

selecting said adhesive based on a viscosity of said adhesive.

8. The method of claim 5 further comprising:

controlling a relative humidity of an environment surrounding said flow meter to cure said adhesive.

9. The method of claim 5 further comprising:

controlling a temperature of said flow meter to cure said adhesive.

10. The method of claim 5 further comprising:

etching said outer surface of said flow tube prior to introducing said adhesive.

11. The method of claim 10 further comprising:

etching said outer surface of said flow tube using a sodium naphthalene etchant.

12. The method of claim 10 further comprising:

cleaning said outer surface of said flow tube prior to introducing said adhesive.

13. The method of claim 5 further comprising:

roughening said inner surface of said tube opening of said first leg and said inner surface of said tube opening of said second leg prior to introducing said adhesive.

14. The method of claim 13 further comprising:

cleaning said inner surface of said tube opening of said first leg and said inner surface of said tube opening of said second leg prior to introducing said adhesive.

15. The method of claim 14 characterized in that cleaning said inner surface of said tube opening of said first leg and said inner surface of said tube opening of said second leg comprises:

washing said inner surface of said tube opening of said first leg and said inner surface of said tube opening of said second leg with acetone in an ultrasonic bath.

16. The method of claim 5 further comprising:

selecting a size of said gap between said outer surface of said flow tube and said inner surface of said tube opening of said first leg based on a viscosity of said adhesive, a surface energy of said outer surface of said flow tube, and a surface energy of said inner surface of said tube opening of said first leg.

17. The method of claim 5 further comprising:

selecting said amount of said adhesive based on a speed of curing.

18. The method of claim 5 further comprising:

applying an accelerator to said adhesive to accelerate curing of said adhesive.

19. A fixture apparatus for manufacturing a flow meter comprised of a base, a flow tube made from a fluoropolymer substance, a driver for vibrating said flow tube, and at least one pick-off for detecting movement of said vibrating flow tube, said base having a first leg and a second leg that are parallel to one another, said first leg having a tube opening extending through said first leg, said second leg having a tube opening coaxial to said tube opening of said first leg and extending through said second leg, said fixture apparatus comprising:

a first section having a first tube opening portion on an end of said first section; and

a second section having a second tube opening portion on an end of said second section, said end of said second section adapted to fit adjacent to said end of said first section to form a fixture block, said fixture block having tube opening formed from said first tube opening portion and said second tube opening portion, said fixture block adapted to fit between said first leg and said second leg of said base.

20. The fixture apparatus of said 19 characterized in that said fixture block further comprises:

a driver opening extending from a first surface of said fixture block and intersecting said tube opening of said fixture block; and

at least one pick-off opening extending from a second surface of said fixture block and intersecting said tube opening of said fixture block.

21. The fixture apparatus of claim 19 characterized in that a length of said fixture block is substantially similar to a distance between an inner surface of said first leg and an inner surface of said second leg.

22. The fixture apparatus of claim 20 further comprising:

a securing means adapted to secure said first section and said second section to said base of said flow meter to align said tube opening of said fixture block with said tube opening of said first leg and said tube opening of said second leg.

23. The fixture apparatus of claim 22 characterized in that:

said base further includes a driver opening that extends through said base;

said securing means is further adapted to secure said fixture block to said base to align said driver opening of said base with said driver opening of said body.

said base further includes at least one pick-off opening that extends through said base; and

said securing means is further adapted to secure said fixture block to said base to align said at least one pick-off opening of said base with said at least one pick-off opening of said fixture block.

24. The fixture apparatus of claim 19 characterized in that said fixture block is comprised of Delrin.

25. The fixture apparatus of claim 19 characterized in that said fixture block is comprised of stainless steel.

26. The fixture apparatus of claim 19 further comprising:

a fastening means adapted to attach said first section to said second section.

27. The fixture apparatus of claim 23 further comprising:

an alignment means adapted to fit in said driver opening of said fixture block and extend from said first surface of said fixture block to an area adjacent said tube opening of said fixture block.

28. The fixture apparatus of claim 27 characterized in that said alignment means includes a lip on one end that is larger than a diameter of said driver opening of said fixture block, said lip adapted to allow said alignment means to extend into said driver opening a certain distance.

29. A method of using said fixture apparatus of claim 19 to affix said flow tube to said base of said flow meter, the method comprising:

inserting said flow tube through said tube opening of said first leg and said tube opening of said second leg;

aligning said first section and said second section of said fixture apparatus to enclose said flow tube between said first tube opening portion and said second tube opening portion;

fastening said first section to said second section to form said fixture block;

securing said fixture block to said base;

introducing an amount of adhesive in a gap between an outer surface of said flow tube and said inner surface of said tube opening of said first leg; and

introducing said amount of adhesive in a gap between said outer surface of said flow tube and said inner surface of said tube opening of said second leg.

30. The method of claim 29 characterized in that said adhesive comprises a cyanoacrylate adhesive.

31. The method of claim 29 characterized in that said flow tube is made of perfluoroalkoxyethlene (PFA).

32. The method of claim 29 characterized in that said base is made of stainless steel.

33. The method of claim 29 further comprising:

selecting said adhesive based on a viscosity of said adhesive.

34. The method of claim 29 further comprising:

controlling a relative humidity of an environment surrounding said flow meter to cure said adhesive.

35. The method of claim 29 further comprising:

controlling a temperature of said flow meter to cure said adhesive.

36. The method of claim 29 further comprising:

etching said outer surface of said flow tube prior to introducing said adhesive.

37. The method of claim 36 further comprising:

etching said outer surface of said flow tube using a sodium naphthalene etchant.

38. The method of claim 36 further comprising:

cleaning said outer surface of said flow tube prior to introducing said adhesive.

39. The method of claim 29 further comprising:

roughening said inner surface of said tube opening of said first leg and said inner surface of said tube opening of said second leg prior to introducing said adhesive.

40. The method of claim 39 further comprising:

cleaning said inner surface of said tube opening of said first leg and said inner surface of said tube opening of said second leg prior to introducing said adhesive.

41. The method of claim 40 characterized in that cleaning said inner surface of said tube opening of said first leg and said inner surface of said tube opening of said second leg comprises:

washing said inner surface of said tube opening of said first leg and said inner surface of said tube opening of said second leg with acetone in an ultrasonic bath.

42. The method of claim 29 further comprising:

selecting a size of said gap between said outer surface of said flow tube and said inner surface of said tube opening of said first leg based on a viscosity of said adhesive, a surface energy of said outer surface of said flow tube, and a surface energy of said inner surface of said tube opening of said first leg.

43. The method of claim 29 further comprising:

selecting said amount of said adhesive based on a speed of curing.

44. The method of claim 29 further comprising:

applying an accelerator to said adhesive to accelerate curing of said adhesive.

45. A method of using said fixture apparatus of claim 27 to affix a driver component of said driver to said flow tube of said flow meter, the method comprising:

attaching said driver component to said alignment means;

applying an adhesive to a surface of said driver component;

inserting said driver component through said driver opening of said fixture block using said alignment means; and

contacting said adhesive on said surface of said driver component to said flow tube using said alignment means.

46. The method of claim 45 characterized in that said adhesive comprises a cyanoacrylate adhesive.

47. The method of claim 45 characterized in that said driver component comprises a magnet.

48. The method of claim 45 further comprising:

allowing said adhesive to cure; and

removing said alignment means from said driver opening of said fixture block.

49. The method of claim 45 further comprising:

controlling a relative humidity of an environment surrounding said flow meter to cure said adhesive.

50. The method of claim 45 further comprising:

controlling a temperature of said flow tube and said driver component to cure said adhesive.

51. The method of claim 45 further comprising:

etching said outer surface of said flow tube prior to applying said adhesive.

52. The method of claim 51 further comprising:

cleaning said outer surface of said flow tube prior to applying said adhesive.

53. The method of claim 45 further comprising:

cleaning said surface of said driver component prior to applying said adhesive.

54. The method of claim 45 further comprising:

applying an accelerator to said adhesive to accelerate curing of said adhesive.

55. A method of using said fixture apparatus of claim 27 to affix a pick-off component of said at least one pick-off to said flow tube of said flow meter, the method comprising:

attaching said pick-off component to said alignment means;

applying an adhesive to a surface of said pick-off component;

inserting said pick-off component through said at least one pick-off opening of said fixture block using said alignment means; and

contacting said adhesive on said surface of said pick-off component to said flow tube using said alignment means.

56. The method of claim 55 characterized in that said adhesive comprises a cyanoacrylate adhesive.

57. The method of claim 55 characterized in that said pick-off component comprises a magnet.

58. The method of claim 55 further comprising:

allowing said adhesive to cure; and

removing said alignment means from said at least one pick-off opening of said fixture block.

59. The method of claim 55 further comprising:

controlling a relative humidity of an environment surrounding said flow meter to cure said adhesive.

60. The method of claim 55 further comprising:

controlling a temperature of said flow tube and said pick-off component to cure said adhesive.

61. The method of claim 55 further comprising:

etching said outer surface of said flow tube prior to applying said adhesive.

62. The method of claim 61 further comprising:

cleaning said outer surface of said flow tube prior to applying said adhesive.

63. The method of claim 55 further comprising:

cleaning said surface of said pick-off component prior to applying said adhesive.

64. The method of claim 55 further comprising:

applying an accelerator to said adhesive to accelerate curing of said adhesive.

65. A method of manufacturing flow tubes made from a fluoropolymer substance that are substantially straight, the method comprising:

extruding a flow tube from an extruding system wherein said flow tube has a temperature above room temperature;

cutting a section of said flow tube;

securing said section of said flow tube to hold the longitudinal shape of said section of said flow tube straight as said section cools down from said temperature; and

packaging said section of said flow tube to maintain the straight longitudinal shape of said section of said flow tube.

66. The method of claim 65 characterized in that said flow tube is made of perfluoroalkoxyethlene (PFA).

67. The method of claim 65 further comprising:

etching said section of said flow tube before packaging said section of said flow tube.

68. The method of claim 65 further comprising:

storing said section of said flow tube to avoid exposing said section of said flow tube to light.

69. The method of claim 65 further comprising:

storing said section of said flow tube at a constant temperature.

70. A method of testing an alignment of a driver and at least one pick-off on a flow tube of a flow meter comprised of a base, said flow tube made from a fluoropolymer substance, said driver for vibrating said flow tube, and said at least one pick-off for detecting movement of said vibrating flow tube, said driver and said at least one pick-off are affixed to said flow tube with an adhesive, the method comprising:

vibrating said flow tube at at least one frequency using said driver;

receiving pick-off signals from said at least one pick-off, said pick-off signals represent a vibrating frequency of said flow tube;

processing said pick-off signals and signals representing said at least one frequency to determine a frequency response; and

indicating an unacceptable alignment of said driver and said at least one pick-off on said flow tube based on said frequency response.

71. The method of claim 70 further comprising:

indicating an unacceptable axial alignment of said driver and said at least one pick-off if said frequency response includes a second bending mode.

72. The method of claim 70 further comprising:

indicating an unacceptable lateral alignment of said driver and said at least one pick-off if said frequency response includes a first torsion mode.